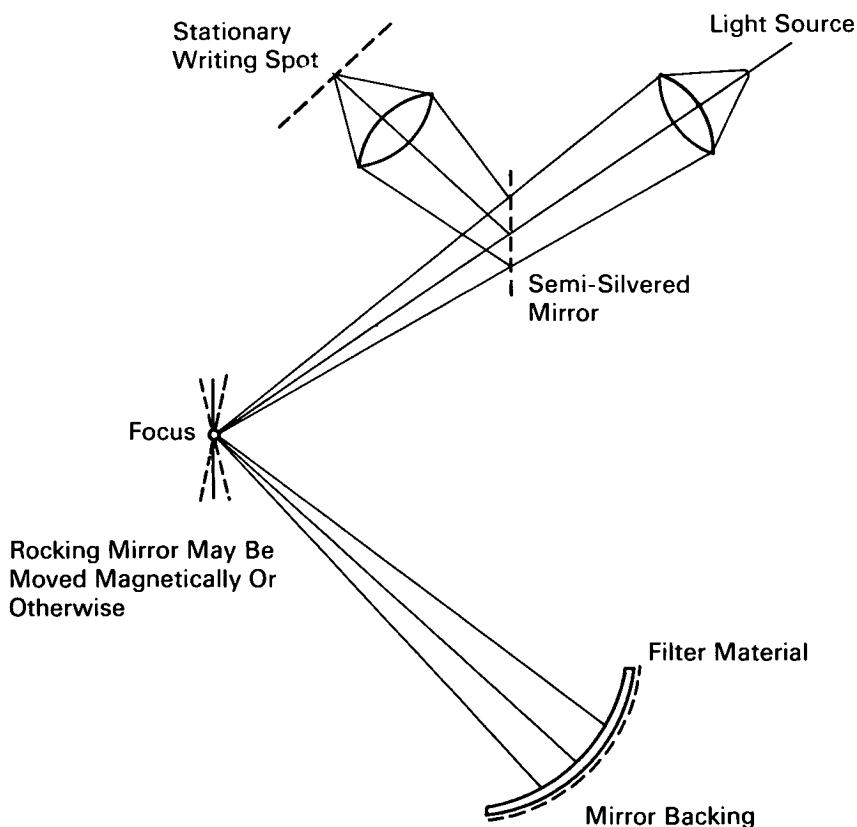


NASA TECH BRIEF



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Device To Color Modulate a Stationary Light Beam Gives High Intensity



The problem:

To color modulate a beam of light while also providing high intensity and a stationary beam, either collimated or focused. It is desirable in systems where color modulation of light is employed to transmit signal information to provide a stationary color modulated output beam in order that the signal informa-

tion may be utilized without compensating for output beam movement. One method of providing such a stationary output beam employs slitted apertures which compensate for the dispersion of light inherent in prismatic or grating light refraction. However, the small slitted apertures required in such systems limit the intensity of the output beam of light too greatly for many applications.

(continued overleaf)

The solution:

An improved signal controlled system for the color modulation of a beam of light in which the color shift for given signal variations is predetermined and may be varied as desired. A beam of light is directed through filters of the desired color according to the position of an oscillating mirror from which the beam is reflected.

How it's done:

A beam from a concentrated white-light source is focused onto a mirror that can be oscillated at any desired modulation frequency. The light reflects from this mirror to a set of colored filters so arranged that as the beam oscillates, it passes through the different colors according to a predetermined modulation pattern. A concave mirror behind the filters returns the light to the oscillating mirror, back to a beam divider and then to the output point.

Notes:

1. The feasibility of recording a beam of light which has been color modulated by prismatic or grating type refraction in conventional three color film is complicated by the color response of the film being incompatible with the color blending and the color dispersion inherent in prismatic color modulation. The color modulation acquired by the presented system can be compatible with any color film by employing color filters formed to provide a color wedge having a color distribution compatible with the film's color sensitivity.
2. This color modulator system may also be applicable for color separation work in the graphic arts.

Patent status:

Title to this invention has been waived under the provisions of the National Aeronautics and Space Act (42 U.S.C. 2457 (f)) to the Regents of the University of California, 2200 University Avenue, Berkeley, California 94720.

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